

# HAMILTON PLACE (PWS 4200037) SOURCE WATER ASSESSMENT FINAL REPORT

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May 23, 2002



## State of Idaho Department of Environmental Quality

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## Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for Hamilton Place, Mountain Home, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Hamilton Place (PWS #4200037) drinking water system consists of one well. Well #1 was constructed in July 1969, is 457 feet deep and the system currently serves approximately 100 people through 38 connections.

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, Well #1 rates automatically high for IOCs, high for VOCs and SOCs, and automatically high for microbials. The automatically high IOC rating was due to a nitrate (January 1996) detection in the well above the maximum contaminant level (MCL) of 10 parts per million (ppm), the automatically high microbial rating was due to a detection (February 1994) of total coliform in the well. System construction scores and hydrologic sensitivity scores were both high and the missing well log raised the scores. Land use scores were moderate for IOCs, VOCs, SOCs, and low for microbials.

No SOCs have ever been tested in the well. Traces of radium, selenium, thallium, antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, and arsenic. Arsenic has been detected (March 1996) in the well at concentrations of 11 parts per billion (ppb), a level greater than the revised MCL of 10 ppm. In October, 2001, the EPA lowered the arsenic MCL from 50 ppm to 10 ppm. However, public water systems have until 2006 to meet the new requirement. VOC contamination is only tested for every three years, consequently, the December 2000 detection of chloroform may be an indication of a larger problem. Though water cannot be totally free of by-products when disinfection is used, they can be reduced by treatment modifications. Other disinfection by-product control strategies can be accessed at [http://www.epa.gov/safewater/mdbp/pdf/alter/chapt\\_2.pdf](http://www.epa.gov/safewater/mdbp/pdf/alter/chapt_2.pdf).

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Hamilton Place, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). Because the arsenic in the well is greater than one-half the level of the revised MCL, Hamilton Place users may need to consider implementing engineering controls to monitor and maintain or reduce the level of this contaminant in the water system. The EPA plans to provide up to \$20 million over the next two years for research and development of more cost-effective technologies to help small systems meet the new MCL. Actions should be taken to keep a 50-foot radius circle clear from potential contaminants from around the wellhead. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated assessment areas are outside the direct jurisdiction of Hamilton Place, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land uses areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Boise Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

# **SOURCE WATER ASSESSMENT FOR HAMILTON PLACE, MOUNTAIN HOME , IDAHO**

## **Section 1. Introduction - Basis for Assessment**

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

### **Background**

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

### **Level of Accuracy and Purpose of the Assessment**

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

## **Section 2. Conducting the Assessment**

### **General Description of the Source Water Quality**

The Hamilton Place (PWS #4200037) drinking water system consists of one well. Well #1 was constructed in July 1969, is 457 feet deep, and the system currently serves approximately 100 people through 38 connections.

In terms of total susceptibility, Well #1 rates automatically high for IOCs, high for VOCs and SOCs, and automatically high for microbials. The automatically high IOC rating was due to a nitrate detection in the well above the maximum contaminant level (MCL) of 10 parts per million (ppm), the automatically high microbial rating was due to a detection (February 1994) of total coliform in the well. System construction scores and hydrologic sensitivity scores were both high and the missing well log raised the scores. Land use scores were moderate for IOCs, VOCs, SOCs, and low for microbials.

No SOCs have ever been tested in the well. Traces of radium, selenium, thallium, antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, and arsenic. Arsenic has been detected (March 1996) in the well at concentrations of 11 parts per billion (ppb), a level greater than the revised MCL of 10 ppm. In October, 2001, the EPA lowered the arsenic MCL from 50 ppm to 10 ppm. However, public water systems have until 2006 to meet the new requirement. VOC contamination is only tested for every three years, consequently, the December 2000 detection of chloroform may be an indication of a larger problem. Though water cannot be totally free of by-products when disinfection is used, they can be reduced by treatment modifications. Other disinfection by-product control strategies can be accessed at [http://www.epa.gov/safewater/mdbp/pdf/alter/chapt\\_2.pdf](http://www.epa.gov/safewater/mdbp/pdf/alter/chapt_2.pdf).

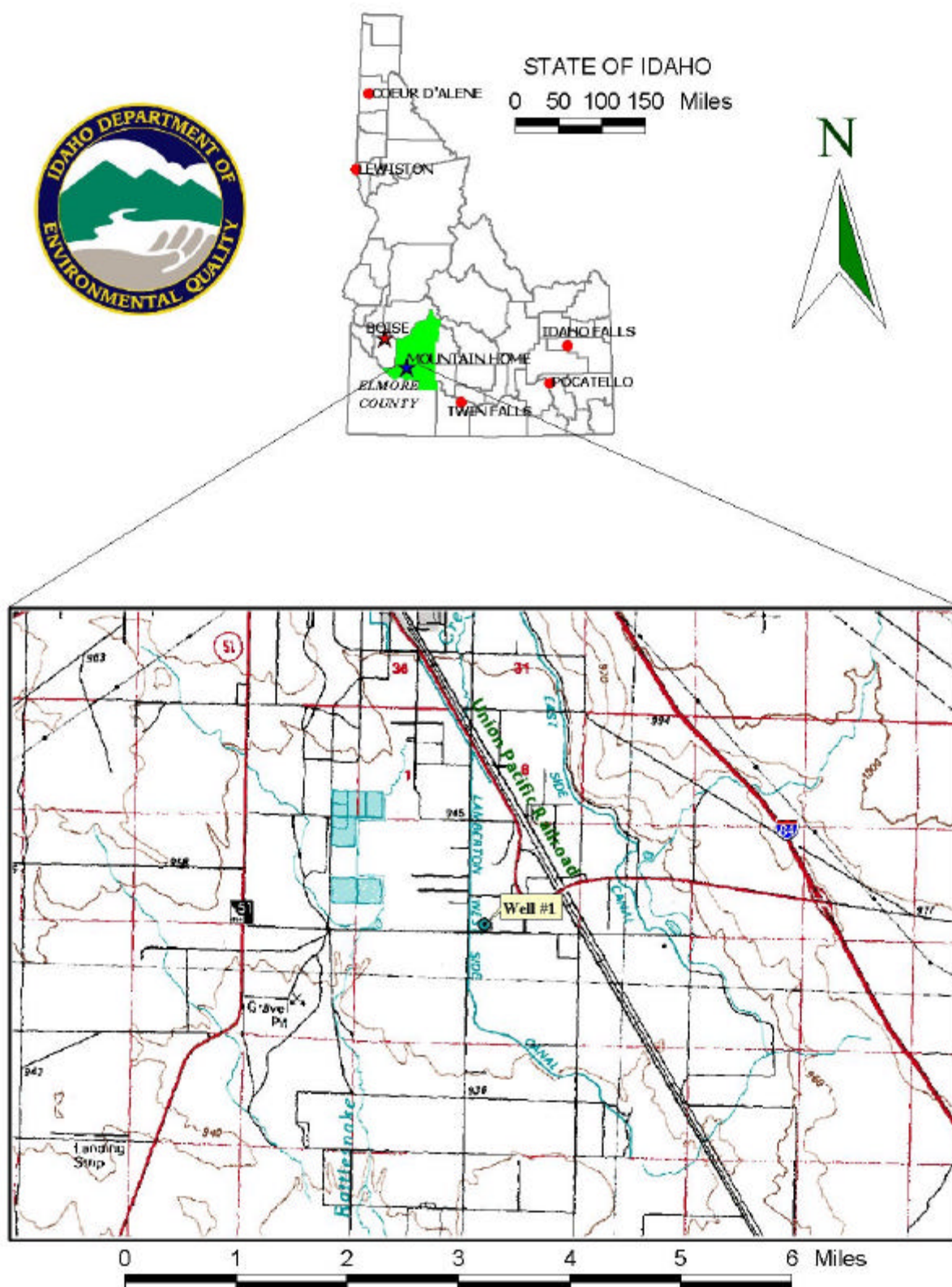
### **Defining the Zones of Contribution – Delineation**

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with BARR Engineering to perform the delineation using a combination of MODFLOW and a refined analytical element computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Mountain Home Plateau aquifer in the vicinity of the Hamilton Place. The computer model used site specific data, assimilated by BARR Engineering from a variety of sources including local area well logs and hydrogeologic reports (detailed below).

### **Mountain Home Plateau Hydrologic Project Information**

The Mountain Home Plateau is a broad, flat plateau, which slopes gently towards the southwest. The plateau is broken by volcanic structures – crater rings, cinder cones, and shield volcanoes. The plateau generally is above 3,000 feet in altitude, except in the extreme western part. All streams draining the plateau are ephemeral, flowing south toward the Snake River. The larger streams draining the Danskin Mountains to the north are fed by springs in the Tertiary volcanics and Cretaceous granites. Characterized by hot, dry summers and cold winters, the climate of the plateau is semi-arid. Average annual precipitation ranges from nine inches on the plateau to about 23 inches in the mountains (Norton et al., 1982).

**FIGURE 1 - Geographic Location of Hamilton Place Well #1, PWS 4200037**



The major geologic units in the Mountain Home Plateau are: 1) alluvium and younger terrace gravels, 2) Snake River Group, 3) Idaho Group, 4) Idavada Volcanics, and 5) Idaho Batholith. The basalts are considerable thicker in the northern section of the study area. Two of the formations of the Idaho Group, the Glenns Ferry Formation and the Bruneau, are the main aquifer systems (Ralston and Chapman, 1968). The basalts of the Bruneau Formation thin rapidly to the east and to the south. Two parallel northwest trending faults cut through the area. An apparent third fault, trending east from Cinder Cone Butte, bisects one of the northwest faults near Cleft. Several volcanic structures are present on the plateau including Crater Rings, Cinder Cone Butte, and Lockman Butte (Norton et al., 1982). There are two main aquifers in the Mountain Home area: 1) a shallow, perched system beneath Mountain Home and 2) a deeper, regional system.

The perched system underlies approximately 38,000 acres extending from about 10 miles south to 4 miles north of the City of Mountain Home with a 4 mile width in the area of the City (Young, 1977). For the most part, ground water in the perched system is in the clay, sily, sand, and gravel layers of the Quaternary Alluvium. Depth to water in the shallow system can be less than 10 feet but varies considerable along the limits of the perched system as the water moves vertically down the regional system (Norton et al., 1982).

Recharge to the perched system occurs from Rattlesnake and Canyon Creeks as well as seepage from Mountain Home Reservoir and the canals and laterals that distribute the water. Natural discharge from the perched system occurs mainly as downward percolation to the regional system and as spring flow at Rattlesnake Spring near the Snake River Canyon rim. The direction of flow in the perched ground water system is towards the southwest.

The deeper, regional aquifer supplies ground water to the large irrigation wells and municipal wells for Mountain Home and the Air Force base. The major rock types are basalts of the Bruneau Formation, Idaho Group, and poorly consolidated detrital material and minor basalt flows of the Glenns Ferry Formation, Idaho Group. Well yields from the basalts of the Bruneau Formation range from 10 to 3500 gallons per minute (gpm). The range of the well yields for the Glenns Ferry Formation is three to 350 gpm. The Bruneau Formation thins rapidly towards the east where the Glenns Ferry Formation becomes the major source of ground water (Norton et al., 1982).

The Glenns Ferry Formation, a thick intertongueing deposit of lake and stream sediments, is the primary aquifer in the eastern portion of the area. Due to the fine-grained nature of the sediments, the permeability and yield to wells is generally low. The formation is composed of tan, gray, and white clay, silt, and fine to medium sand (Ralston and Chapman, 1968). The formation has been noted as being 2000 feet thick near Glenns Ferry (Malde and Powers, 1962).

The sediments and basalt of the Bruneau Formation are the primary aquifers in the Mountain Home area. The jointing, fracturing, and vesicular character of the basalts cause them to be very permeable. The majority of ground water withdrawal from the formation is from deeper interflow zones and a thin but extensive series of sand beds just below the lower basalt unit. The unit has approximately 1500 feet of lake and stream sediments with numerous basalt interbeds. The basalts tend to be dark gray to black when fresh but weather to a reddish gray-brown color. Most of the interflow zones contain large quantities of glassy cinders and some ash (Ralston and Chapman, 1968).

Ralston and Chapman (1968 and 1970) found that recharge to the ground water system in the eastern portion of the Mountain Home Plateau is limited due to low amounts of precipitation, relatively impermeable material in the area of most precipitation, and high evapotranspiration rates. Recharge to the regional system occurs as downward percolation of precipitation that falls on the mountains, losses from intermittent stream flows, and from downward percolation from the perched system. Discharge from the regional system occurs as spring flow, underflow to the Snake River, and pumpage.

In general, the direction of ground water flow is towards the southwest with a southern component in the southeast and a western component in the northwest. Low permeability along the apparent east-west trending fault through Cleft limits the flow to the north. The ground water elevation is 70 to 165 feet higher on the south side of the fault (Norton et al., 1982).

The delineated source water assessment area for the Hamilton Place well can best be described as a northeast trending corridor approximately 3300 feet long and 600 feet wide extending just past old Highway 30 (Figure 2). The actual data used by BARR Engineering in determining the source water assessment delineation areas are available from DEQ upon request.

### **Identifying Potential Sources of Contamination**

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the area surrounding the Hamilton Place wells consists of predominately irrigated agriculture.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

### **Contaminant Source Inventory Process**

A two-phased contaminant inventory of the study area was conducted in February and March 2001. The first phase involved identifying and documenting potential contaminant sources within the Hamilton Place source water assessment area (Figure 2) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated areas.

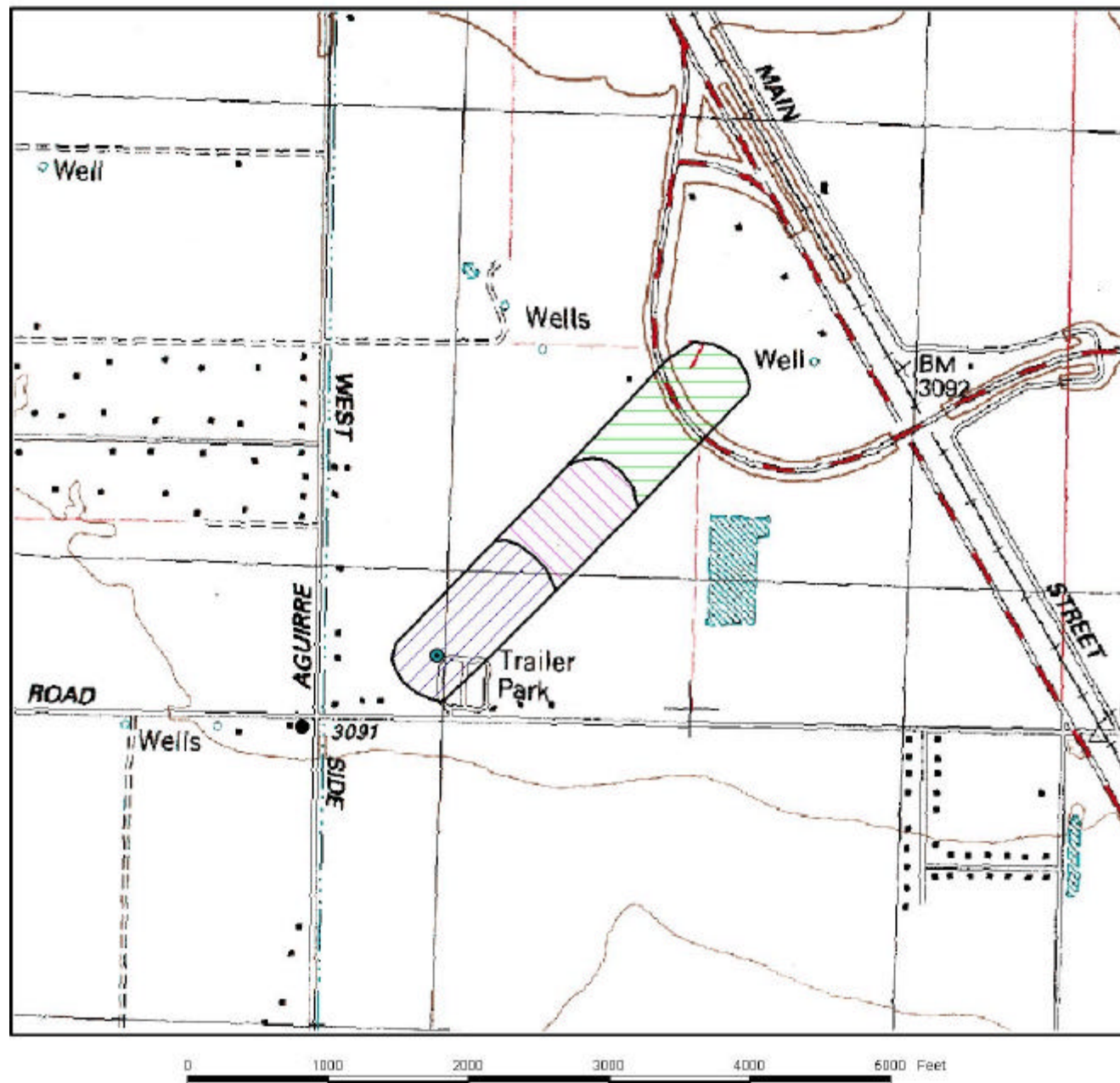


The delineated source water area for Well #1 (Figure 2) has two potential contaminants sources identified by DEQ which are outlined in Table 1.

**Table 1. Hamilton Place, Well #1, Potential Contaminant Inventory**

SITE #	Source Description <sup>1</sup>	TOT Zone <sup>2</sup> (years)	Source of Information	Potential Contaminants <sup>3</sup>
	Trailer Park	0 – 3 YR	GIS Map	IOC, VOC, SOC, microbials
	Old Highway 30	6 – 10 YR	GIS Map	IOC, VOC, SOC

**FIGURE 2 - Hamilton Place Delineation Map and Potential Contaminant Source Locations**



Technical Services  
Data/GIS  
W. Kelley 2/19/02

**PWS# 4200037**  
**Well #1**

### **Section 3. Susceptibility Analyses**

The well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

#### **Hydrologic Sensitivity**

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquiclude) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Well #1 rated high for hydrologic sensitivity. Area soils are moderate to well-drained. In addition, the vadose zone composition is unknown, the water table depth is less than 300 feet, and it is unknown if an aquiclude is present. A well log, which was unavailable for use in the analysis, would have provided the missing information. If the missing information would have been available, the hydrologic sensitivity score might have been lower.

#### **Well Construction**

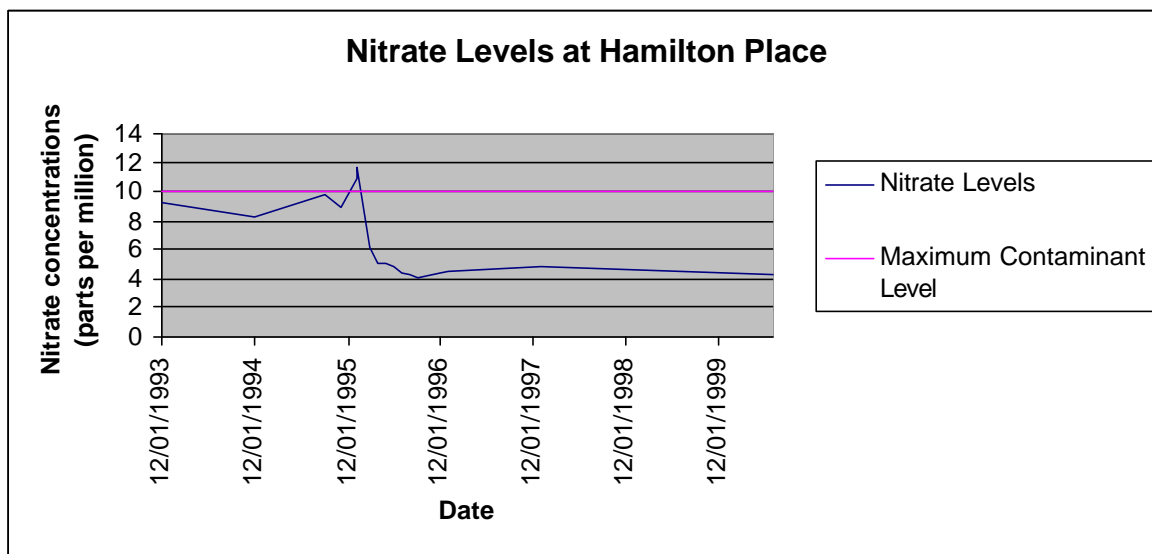
Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

Well #1 had high system construction scores. The well is located outside of the 100 year floodplain. However, the wellhead (needs vent) and surface seal (needs floor drain) are not maintained and protected from surface flooding. In addition, it is unknown if the casing and annular seal extend into a low permeability units or if the highest producing zone of the well is more than 100 feet below the static water level. A well log which was missing during this analysis would have provided the missing information and might have lowered system construction scores.

Current PWS well construction standards are more stringent than when the well was constructed. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the regulations deal with screening requirements, aquifer pump tests, use of a downturned casing vent, and thickness of casing. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter wells require a casing thickness of 0.322 inches. The well was assessed an additional system construction point because the casing thickness was unknown.

### Potential Contaminant Source and Land Use

Well #1 rated high for IOCs (i.e. nitrates, arsenic), moderate for VOCs (i.e. petroleum products) and SOCs (i.e. pesticides), and low for microbial contaminants (i.e. bacteria). The minimal number and location of potential contaminate sources within the delineation contributed to the scores. Since much of the delineation is irrigated agriculture, a higher potential exists for nitrate contamination.



### Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking. Well #1 automatically rated high for IOCs (nitrate present higher than MCL), high for VOCs and SOCs, and automatically high for microbials (positive tests for total coliform in the well). Overall, the well rated high susceptibility for all classes of contaminants.

**Table 2. Summary of Hamilton Place Susceptibility Evaluation**

Well	Susceptibility Scores <sup>1</sup>									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	M	M	L	H	H*	H	H	H*

<sup>1</sup>H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

H\*= automatic high due to nitrate over allowable limit (IOC), a detection of chloroform (VOC) and total coliform (microbials) in the well

### Susceptibility Summary

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No SOCs have ever been tested in the well. Traces of radium, selenium, thallium, antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, and arsenic. Arsenic has been detected (March 1996) in the well at concentrations of 11 parts per billion (ppb), a level greater than the revised MCL of 10 ppm. In October, 2001, the EPA lowered the arsenic MCL from 50 ppm to 10 ppm. However, public water systems have until 2006 to meet the new requirement. VOC contamination is only tested for every three years, consequently, the December 2000 detection of chloroform may be an indication of a larger problem. Though water cannot be totally free of by-products when disinfection is used, they can be reduced by treatment modifications. Other disinfection by-product control strategies can be accessed at [http://www.epa.gov/safewater/ndbnp/pdf/alter/chapt\\_2.pdf](http://www.epa.gov/safewater/ndbnp/pdf/alter/chapt_2.pdf).

### Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Hamilton Place, drinking water protection activities should first focus on correcting

any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 50-foot radius circle clear around the wellheads. Any spills within the delineation should be carefully monitored and dealt with. As much of the designated protection area is outside the direct jurisdiction Hamilton Place, making collaboration and partnerships with state and local agencies and industry groups are critical to the success of drinking water protection. The wells should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation contains some urban and residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the Elmore Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Boise Regional Office of the DEQ or the Idaho Rural Water Association.

### **Assistance**

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Boise Regional DEQ Office                      (208) 373-0550

State DEQ Office                                      (208) 373-0502

Website: <http://www.deq.state.id.us>

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, Idaho Rural Water Association, at (208) 343-7001 (mharper@idahoruralwater.com) for assistance with drinking water protection (formerly wellhead protection) strategies.

## POTENTIAL CONTAMINANT INVENTORY

### LIST OF ACRONYMS AND DEFINITIONS

**AST (Aboveground Storage Tanks)** – Sites with aboveground storage tanks.

**Business Mailing List** – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

**CERCLIS** – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund® is designed to clean up hazardous waste sites that are on the national priority list (NPL).

**Cyanide Site** – DEQ permitted and known historical sites/facilities using cyanide.

**Dairy** – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

**Deep Injection Well** – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

**Enhanced Inventory** – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

**Floodplain** – This is a coverage of the 100year floodplains.

**Group 1 Sites** – These are sites that show elevated levels of contaminants and are not within the priority one areas.

**Inorganic Priority Area** – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

**Landfill** – Areas of open and closed municipal and non-municipal landfills.

**LUST (Leaking Underground Storage Tank)** – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

**Mines and Quarries** – Mines and quarries permitted through the Idaho Department of Lands.)

**Nitrate Priority Area** – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

**NPDES (National Pollutant Discharge Elimination System)**

– Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

**Organic Priority Areas** – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

**Recharge Point** – This includes active, proposed, and possible recharge sites on the Snake River Plain.

**RICRIS** – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

**SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities)** – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

**Toxic Release Inventory (TRI)** – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

**UST (Underground Storage Tank)** – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

**Wastewater Land Applications Sites** – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

**Wellheads** – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

**NOTE:** Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

## References Cited

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Attachment A

Hamilton Place  
Susceptibility Analysis  
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5    Low Susceptibility

6 - 12   Moderate Susceptibility

≥ 13    High Susceptibility

1. System Construction		SCORE			
Drill Date	July 1969				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	NO	1			
Total System Construction Score		6			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	2	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2 ) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	5	1	1	
4 Points Maximum		4	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	7	7	6
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	0	0	
Sources of Class II or III leacheable contaminants or	NO	1	0	0	
Land Use Zone II Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	2	2	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		22	14	14	8
4. Final Susceptibility Source Score		16	15	15	14
5. Final Well Ranking		High	High	High	High